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The examination of critical thinking styles of university students (TRNC Sample)

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Abstract

The aim of this research is to analyse critical thinking styles of university students according to gender, socio-economic level and class independent variable. The sample of the study was chosen from students studying at universities in Turkish Republic of Northern Cyprus. Determined by the convenient sampling method, a total of 317 students. "Critical thinking styles scale" that was developed by Yoldaş (2009) and personal information form were used as data collecting tool. In the analysis of the data, F-Test, t-Test, and Scheffe techniques were used. The level of statistical significance was accepted as .05 in the study. It was determined that, in general, critical thinking styles of the students are at medium level ($\bar{x}$=144.902±15.067); meaningful differentiation was determined in sub-dimensions of critical thinking styles that are consciousness (t=2.105; p<.05), empathy (t=2.529; p<.05), acceptance (t=2.559; p<.05) and critical thinking towards media (t=2.633; p<.05) according to gender; and meaningful differentiation was also determined in sub-dimensions of critical thinking styles that are sense (F=3.552; p<.05) and critical thinking towards media (F=4.687; p<.05) according to class independent variable.

Keywords: Critical thinking, style, empathy, sense, acceptance, university student;

1. Introduction

In very simple way, critical thinking can be described as individuals' taking their responsibilities, or skill of being responsible for their thoughts (Jitgarun, K., & Tongsakul, A. 2009). For this, individuals develop various standards and criteria in order to analyse and evaluate what they think; and they use these criteria and standards as routine in order to increase the quality of their thoughts (Elder, L. and Paul, R. 1994). Individuals who are lack of critical thinking cannot distinct what they do and why they do that. When they encounter a thought that contradicts with theirs, they seek the way to quieten ones who defend the thought. They do not need to refresh themselves. They stay in a mould. This kind of people cannot be really constructive and creative (Özden, 2005). Cited by Güven and Kürüm (2010), Paul (1992) who is known with the studies he has done on critical thinking define critical thinking as "in order to develop one's his own thinking while realizing thinking activity, thinking on it" and he indicated that there are two important things in this definition and he explained them like this: (Foundation for Critical Thinking Home Page, 2004): Critical thinking is not only thinking at the same time it is thinking what can be effective for you

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to develop yourself. Developing yourself is about skills of the individual about standards that the individual uses while he is thinking. In other words, it is developing one's own thinking style by standards. As a result of the study that was held by Erktin (2002) in order to determine attitudes of teachers towards thinking training, he determined that they pay attention to critical thinking at last in the order. The aim of this research is to analyse candidate teachers' critical thinking skills in terms of gender and grade independent variables **(**Eyadat, W., & Eyadat, Y. (2010). The question of the research was stated as "Do candidate teachers' critical thinking skills differentiate in terms of gender and grade variables?" Through this main question answers were sought to sub-questions below: Do candidate teachers' critical thinking skills differentiate significantly in terms of gender independent variable? Do candidate teachers' critical thinking skills differentiate significantly in terms of grade independent variable?

2. Method

2.1. Research Model

This research is a descriptive study (relational-screening model). Descriptive model that is used commonly aims to describe the situation. Screening models is research approach that aims to describe the situation as it is (Karasar, 2009).

2.2. Universe and Sampling

The universe of the study was chosen from students studying at education faculties of the universities in Turkish Republic of Northern Cyprus. Determined by the convenient sampling method, a total of 317 students with 62.80% female (n=199) and 37.20% male (n=118) constitute the population of the sample. There are students who studies at the departments of Turkish (n=96), pre-school (n=95), English (n=29), Guidance and Counselling (n=70), and Special Training (27). Volunteer students who are in the lesson took part in the sample of the research at the time and on the day of the research application.

2.3. Data Collecting tools

As data collecting tool "Critical Thinking Skills Scale" that was developed by Yoldaş (2009) and personal information form that was developed by researchers were used in the research. "Critical Thinking Skills Scale" has seven sub-dimensions as sensibility in critical thinking, consciousness in critical thinking, empathy in critical thinking, adoption in critical thinking, assumption in critical thinking, commonsense in critical thinking, critical thinking towards the media. It was found that seven factors explained 45,14% of total variance. The Cronbach Alpha reliability of this scale was determined as .87. High scores describe positive critical thinking skill, and low scores describe negative critical thinking skill.

2.4. Analysis of the data

SPSS.12 Package program was used to analyse the data. For dual comparisons t-test was used and for multiple comparisons, one-way variance analysis (ANOVA), Scheffe meaningfulness test were used. The statistical significance level in the study was accepted as 0.05.

3. Findings and Interpretation

In this part, findings and interpretations takes place about sub-questions of the research.

3.1. Findings about the first sub-question of the research

The first sub-question of the research was stated as "Do candidate teachers' critical thinking skills differentiate significantly in terms of gender independent variable?" as it is seen from the Table 1, females' critical thinking skills consciousness sub-dimension mean was found as $\overline{x}$=33.442 and males' was found as $\overline{x}$=31.669; female candidate teachers' critical thinking skills empathy sub-dimension mean was found as $\overline{x}$=20.547 and males' was found as $\overline{x}$=19.601; female candidate teachers' critical thinking skills adoption sub-dimension mean was found as $\overline{x}$=18.778, and males' was found as $\overline{x}$=17381; female candidate teachers' critical thinking towards the media was found as $\overline{x}$=6.924 and males' was found as $\overline{x}$=6.254; in general female candidate teachers' critical thinking skills mean was found as $\overline{x}$=146.904 and males' was found as $\overline{x}$=141.525. t-test was applied in order to find whether there is a statistical significant differentiation among means of critical thinking in terms of gender independent variable.

Table 1. Mean, standard deviation, and t values about candidate teachers critical thinking skills in terms of gender

Critical Thinking Sub-Scale	Gender	n	$\overline{x}$	ss	t	p
sensibility	Female	199	36,271	4,179	.762	.447
	Male	118	35,864	5,232		
consciousness	Female	199	33,442	7,286	2.105	.036*
	Male	118	31,669	7,180		
empathy	Female	199	20,547	3,067	2.529	.015*
	Male	118	19,601	3,461		
adoption	Female	199	18,778	4,542	2.559	.013*
	Male	118	17,381	4,956		
assumption	Female	199	14,969	2,562	.348	.728
	Male	118	15,076	2,739		
commonsense	Female	199	15,969	2,438	.991	.322
	Male	118	15,678	2,688		
towards the media	Female	199	6,924	2,160	2.633	.009*
	Male	118	6,254	2,242		
Total	Female	199	146,904	15,183	3.115	.002*
	Male	118	141,525	14,306		

*p<.05

As a result of t-test that was applied to the data, in terms of gender independent variable, it was determined that empathy, consciousness, adoption, towards the media sub-dimensions in candidate teachers' critical thinking skills and means of critical thinking skills in general differentiate significantly. This differentiation is in favour of female students. In this case it can be said that female candidate teachers have better critical thinking skills level.

The result of differentiation in favour of female students is supported by the researches of Genç (2008), Güleç and Çakmak (2010). And the result is contradictive to the researches of Özdemir (2005), Aral (2005), Kaloç (2005), Tümkaya, Aybek and Aldağ (2009), Narin and Aybek (2010).

3.2. Findings about the second sub-question of the research

The first sub-question of the research was stated as "Do candidate teachers' critical thinking skills differentiate significantly in terms of grade independent variable?"

Table 2 Mean, standard deviation, and f values about critical thinking skills of candidate teachers in terms of grade independent variable.

Critical Thinking Sub-Scale	Grade	n	$\overline{x}$	ss	F	p	Source of the difference
	1	100	35,520	4,684	2,040	,108	-

sensibility	2	129	36,232	4,217			
	3	54	35,944	5,115			
	4	34	37,735	4,640			
	Total	317	36,119	4,596			
consciousness	1	100	31,460	6,220	1,824	,143	-
	2	129	33,643	7,498			
	3	54	32,722	8,031			
	4	34	33,500	7,867			
	Total	317	32,782	7,286			
empathy	1	100	19,480	3,069	2,628	,050	-
	2	129	20,403	3,133			
	3	54	20,833	3,745			
	4	34	20,500	3,096			
	Total	317	20,195	3,247			
adoption	1	100	17,490	4,066	1,828	,142	-
	2	129	18,310	4,990			
	3	54	19,277	5,310			
	4	34	18,705	4,482			
	Total	317	18,258	4,741			
assumption	1	100	14,650	2,720	1,002	,392	-
	2	129	15,178	2,425			
	3	54	15,055	3,043			
	4	34	15,352	2,346			
	Total	317	15,009	2,625			
commonsense	1	100	15,210	2,594	3,552	,015*	1-2* 1-3* 1-4*
	2	129	16,046	2,474			
	3	54	16,259	2,466			
	4	34	16,441	2,401			
	Total	317	15,861	2,534			
Towards the media	1	100	7,220	2,082	4,687	,003*	1-2* 2-3*
	2	129	6,186	2,171			
	3	54	6,963	2,214			
	4	34	6,470	2,377			
	Total	317	6,675	2,211			
Critical thinking skills in general	1	100	141,030	13,565	3,607	,014*	1-2* 1-3* 1-4*
	2	129	146,000	15,605			
	3	54	147,055	15,933			
	4	34	148,705	14,029			
	Total	317	144,902	15,067			

One-way variance analysis (ANOVA) was applied in order to find whether there is a statistical significant differentiation among means of critical thinking in terms of grade independent variable.

As a result of one-way variance analysis that was applied to the data, in terms of grade independent variable, it was determined that commonsense ($F=3.552$ $p<.05$), towards the media ($F=4.687$ $p<.01$) sub-dimensions in candidate teachers' critical thinking skills and means of critical thinking skills in general ($F=3.607$ $p<.05$) differentiate significantly. As a result of Scheffe meaningfulness test that was applied in order to find the groups that caused the difference, it was determined that differentiation in commonsense sub-dimension of critical thinking skills derived from the candidate teachers who are in the first grade, differentiation in towards the media sub-dimension of critical thinking skills derived from the candidate teachers who are in "the first and second grade" and "the second and third grade"; and differentiation in critical thinking skills in general derived from the candidate teachers who are in the first grade. These results are supported by the researches of Saçlı and Demirhan (2008), Grosser and Lombard (2008), Öztürk and Ulusoy (2008), Korkmaz (2009), Güleç Çakmak (2010).

4. Result and suggestions

As a result of the study, it was determined that empathy, consciousness, adoption, towards the media sub-dimensions in candidate teachers' critical thinking skills and means of critical thinking skills in general differentiate significantly in terms of gender independent variable and in terms of grade independent variable, differentiation was determined in commonsense, towards the media sub-dimensions and means of critical thinking skills in general. Through the results of the research some suggestions were given:

- Candidate teachers can be encouraged by lecturers to read the books that can guide them in order to gain critical thinking skills.
- When it is thought that problem solving skill is one of the main dimensions of critical thinking skills, education programs can be applied to candidate teachers in order to increase their problem solving skills.
- Relationship between lecturers and candidate teachers can be measured and analysed.
- Similar researches can be held with other faculties and universities.

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